NewsRelease

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NASA HELPS CREATE A PARACHUTE TO SAVE LIVES, PLANES

The pilot of a small disabled plane that floated to a safe landing can thank NASA and a Minneapolis company for letting him walk away with nothing more than a stiff neck.

In 1994, NASA's Small Business Innovation Research (SBIR) program awarded Ballistic Recovery Systems (BRS), Inc., of South St. Paul, Minn., an SBIR Phase I contract to develop a "low-cost, lightweight aircraft emergency recovery system."

In October 2002, a pilot released his Cirrus SR-22 aircraft's parachute and landed safely in a Texas Mesquite tree grove. The pilot was uninjured, and there was minimal damage to the plane. The safe landing made aviation history as the first emergency application of an airframe parachute on a certified aircraft.

The "save" is also a research and development (R&D) success story between small business and government. The SBIR program provides an opportunity for small, high technology companies and research institutions to participate in government sponsored R&D efforts in key technology areas.

NASA's Langley Research Center , Hampton, Va., recommended funding for the BRS SBIR Phase I proposal to develop new, light-weight and strong materials that would allow a parachute to deploy at the speeds required for high-performance general aviation (GA) single-engine planes. The parachute and mounting gear had to weigh less than 60 pounds including the straps that are part of the airplane structure.

"BRS addressed a NASA program need with their innovative solution," said Robert Yang, head of Langley's Small Business Partnership Team. "The company had an excellent technical proposal and did significant homework in planning for commercial applications."

The first award was in 1994. Phase I awards are usually under $100,000. Two years later, BRS was awarded Phase II funding for continued development of the Parachute Recovery System; these awards are up to $600,000.

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Propelled by a solid fuel rocket motor, the parachute is released from a special opening on top of the fuselage. Three Kevlar webbing straps connect the parachute to the airframe and help guide it through a level descent. BRS says aircraft, pilots, and passengers could be saved from altitudes of as little as 300 feet.

Although BRS has had 155 "saves" with its ultralight and experimental parachute systems, the October safe landing is the first in a certified general aviation aircraft. Mark Thomas, president and CEO of BRS, Inc., says this is an historical moment for aviation and for BRS.

"We hope that this 'save' will have a far reaching impact on pilots of all aircraft designs," added Thomas. "Making them more aware that there are alternatives when things go wrong and you cannot safely land your airplane."

The BRS Cirrus Airframe Parachute System (CAPS) is included as standard equipment on the Cirrus four-seat SR20 and SR22 aircraft. NASA maintains a SR22 for GA research applications.

"This technology has been successful on many levels," added Yang. "It will be part of the suite of innovations available to SATS (NASA's Small Aircraft Transportation System research program) that have been funded through the SBIR program. BRS has been able to take the concept and spin it back into the NASA's program needs."

Yang says he sees it as a quality of life improvement. One U.S. insurance company offers up to a 10 percent discount on premiums for a plane having such a system. While European aviation organizations are pursuing some mandatory requirements for systems on certain experimental aircraft.

BRS has also won 2001 SBIR Phase I and II awards for the development of a larger parachute for the new generation of mini jets. BRS will also attempt to make this parachute steerable.

"The mini-jet market is one of the most exciting developments in recent aviation history," says Thomas. This new line of aircraft is going to make affordable personal air travel a reality. The vision of safe air travel by incorporating a whole aircraft recovery parachute system will become possible through the cooperative efforts of NASA and BRS though the SBIR program."

For more information on NASA's SBIR program go to:

http://tech-transfer.larc.nasa.gov/sbir/

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Photographs and video are available to support this story.

For a preview of still images and video, go to:

http://oea.larc.nasa.gov/news_rels/2002/images/02-087.html

Broadcast media organizations are invited to take a b-roll feed via satellite from NASA TV Wednesday, Nov. 20, during the NASA Video File, which runs at noon, 3 p.m. and 6 p.m. EST daily. NASA TV is broadcast on GE-2, transponder 9C, C-Band, located at 85 degrees West longitude. The frequency is 3880.0 MHz. Polarization is vertical and audio is monaural at 6.8 MHz.